

## INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/EP2004/005087A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H04B1/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 188 877 B1 (BOESCH RONALD D ET AL) 13 February 2001 (2001-02-13) abstract; figures 3,4 column 5, line 38 - column 7, line 40 -----	1-14
X	EP 0 823 790 A (NOKIA MOBILE PHONES LTD) 11 February 1998 (1998-02-11) abstract; figure 3 -----	1-14
X	US 6 091 966 A (MEADOWS RONALD C) 18 July 2000 (2000-07-18) column 3, line 56 - column 5, line 10; figures 1,4 -----	1-14
A	EP 0 780 993 A (LUCENT TECHNOLOGIES INC) 25 June 1997 (1997-06-25) abstract; figure 3 ----- -/--	1-14

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

7 September 2004

Date of mailing of the international search report

16/09/2004

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# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/EP2004/005087

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		Relevant to claim No.
Category *	Citation of document, with indication, where appropriate, of the relevant passages	
A	GB 2 362 544 A (ROKE MANOR RESEARCH) 21 November 2001 (2001-11-21) abstract; figure 4	1-14
A	GB 2 346 049 A (ROKE MANOR RESEARCH) 26 July 2000 (2000-07-26) abstract; figure 4	1-14

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6188877	B1	13-02-2001	US 6298244 B1	02-10-2001
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US 6724278 B1	20-04-2004			

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 24 OCT 2005

WIPO

PCT

Applicant's or agent's file reference PD53573PC	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/EP2004/005087	International filing date (day/month/year) 12.05.2004	Priority date (day/month/year) 10.06.2003
International Patent Classification (IPC) or national classification and IPC H04B1/04		
Applicant SONY ERICSSON MOBILE COMMUNICATIONS AB et al		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
  - ☒ sent to the applicant and to the International Bureau a total of 3 sheets, as follows:
    - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
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04.04.2005

21.10.2005

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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements\*** of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

### Description, Pages

1-8

as originally filed

### Claims, Numbers

1-13

received on 07.10.2005 with letter of 07.10.2005

### Drawings, Sheets

1/2, 2/2

as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (specify):
- ☐ any table(s) related to sequence listing (specify):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (specify):
- ☐ any table(s) related to sequence listing (specify):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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## Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement
- |                               |             |      |
|-------------------------------|-------------|------|
| Novelty (N)                   | Yes: Claims | 1-13 |
|                               | No: Claims  |      |
| Inventive step (IS)           | Yes: Claims |      |
|                               | No: Claims  | 1-13 |
| Industrial applicability (IA) | Yes: Claims | 1-13 |
|                               | No: Claims  |      |

2. Citations and explanations (Rule 70.7):  
see separate sheet

## Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:  
see separate sheet

## Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
see separate sheet

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Document D1, (see in particular Figure 3), discloses a method of reducing the influence on signals transmitted in one of at least two frequency bands ( 800 and 1900 MHZ ) the method comprising the steps of  
when transmitting signals in a first frequency band (800MHz) from a signal generating unit (302, generator not shown) on a first connection (308) to a power amplifying unit (310,320),  
breaking a second separate connection (306) provided between the signal generating unit (302) and the power amplifying unit (310,320), which second connection (306) is used for a second frequency band (1900 MHZ) and  
when transmitting signals in a second frequency band (1900MHz) from a signal generation unit (302, generator not shown) on the second connection (306) to the power amplifying unit (310,320),  
breaking a first connection (308) provided between the signal generating unit (302) and the power amplifying unit (310,320).

The references in parentheses apply to the figures of D1. It should be noted that the power amplifying unit (310,320) of D1 comprises two amplifiers.

The disclosure of D1 thus only differs from the subject-matter of claim 1 in that claim 1 specifies the functional units, i.e signal generating unit and amplifying unit, as chips.

It is however, a usual design measure to implement a signal generation unit and an amplifying unit using semiconductor chips.

A skilled person, when having the problem, to implement the method known from D1, would therefore, by applying normal design techniques, arrive at the subject-matter of claim 1 without the exercise of an inventive step in the sense of Article 33 (3) PCT.

3. The subject-matter of independent claims 3,4,8,9 and 13 corresponds to the subject-matter of claim 1, therefore the above argumentation correspondingly applies to

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REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

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these claims.

4. The dependent do not appear to contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step (Article 33(3) PCT) since these claims merely define an association of known features functioning in their normal way and, in combination, not producing any non-obvious working interrelationship, cf. PCT Guidelines Chapt. IV,8.8(B1).

**Re Item VII**

**Certain defects in the international application**

- Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1 to D3 is not mentioned in the description, nor are these documents identified therein.

**Re Item VIII**

**Certain observations on the international application**

1. Although claims 1,3,4,8,9 and 13 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 1,3,4,8,9 and 13 do not meet the requirements of Article 6 PCT.



## CLAIMS

1. Method of reducing the negative influence on signals transmitted in one ( $B_1$ ) of at least two frequency bands ( $B_1, B_2$ ) comprising the steps of:  
transmitting signals in a first frequency band on a first connection (22) from a signal generating unit (16) to a signal processing unit (18), (step 32) and  
breaking a second connection (24) provided between the signal generating unit and the signal processing unit, which second connection is used for a second frequency band ( $B_2$ ), (step 30).
2. Method according to claim 1, further comprising the step of providing a control signal (CTRL) by the signal generating unit (step 28) and the step of breaking is performed in dependence of said control signal.
3. Method of reducing the negative influence on signals transmitted in one of at least two frequency bands ( $B_1, B_2$ ) comprising the steps of:  
receiving, in a signal processing unit (18), signals in a first frequency band ( $B_1$ ) on a first connection (22) from a signal generating unit (16), (step 34), and  
breaking a second connection (24) provided between the signal generating unit and the signal processing unit, (step 30), which second connection is used for a second frequency band ( $B_2$ ).
4. Device (36) for reducing the negative influence on signals transmitted in one of at least two frequency bands comprising:  
a signal generating unit (16) for connection to a signal processing unit (18) via at least two connections (22, 24), and  
a connection breaking unit (20) connected to at least one (24) of the two connections and arranged to break the connection (24) between the signal generating unit and the signal processing unit, when signals are to be transmitted from the signal generating unit to the signal processing unit on the other connection (22).
5. Device according to claim 4, wherein the signal generating unit is arranged to provide a control signal (CTRL) and the connection breaking unit is provided with a control signal input for receiving the control signal for actuating the breaking of the connection.
6. Device according to claim 5, wherein the connection breaking unit is a switch, preferably an RF switch.

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7. Device according to any of claims 4 - 6, wherein the signal generating unit is a modulation unit.
8. Device according to any of claims 4 - 7, wherein the signal processing unit is a power amplifying unit.
9. Device (36) for reducing the negative influence on signals transmitted in one of at least two frequency bands comprising:
  - a signal processing unit (18) for connection to a signal generating unit (16) via at least two connections (22, 24), and
  - a connection breaking unit (20) connected to at least one (24) of the two connections and arranged to break the connection between the signal generating unit and the signal processing unit, when signals are to be transmitted from the signal generating unit to the signal processing unit on the other connection (22)..
10. Device (10; 12) for reducing the negative influence on signals transmitted in one of at least two frequency bands comprising:
  - a signal processing unit (18) and a signal generating unit (16) connected to each other via at least two connections (22, 24), and
  - a connection breaking unit (20) connected to at least one (24) of the two connections and arranged to break the connection between the signal generating unit and the signal processing unit, when signals are to be transmitted from the signal generating unit to the signal processing unit on the other connection (22).
11. Device according to claim 10, in which it is a portable communication device (10).
12. Device according to claim 11, in which it is a cellular phone.
13. Device according to claim 10, in which it is a base station (12).
14. System of wireless communication devices comprising at least one portable communication device (10) and at least one base station (12), wherein at least one of the devices comprises:
  - a signal processing unit (18) and a signal generating unit (16) connected to each other via at least two connections (22, 24), and

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a connection breaking unit (20) connected to at least one (24) of the two connections and arranged to break the connection between the signal generating unit and the signal processing unit, when signals are to be transmitted from the signal generating unit to the signal processing unit on the other connection (22).

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